論　文

Anaphor Licensing and Island Effects in Relative Clauses

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要　旨

本論文では，英語と日本語の関係節における照応詞認可および島の効果に焦点を当て分析する。日本語関係節では関係節の主語位置に照応詞の生起が許されるが，英語関係節においては許されない。本論文では，Takahashi（2002）の空演算子はA移動できないという議論をもとに，日本語の関係節に空範疇が生起するという従来の分析を用いると，この日本語関係節における照応詞の事実が説明できないと主張する。本論文では，関係節の空所位置に関係節主要部が顕在的に生起し，顕在的要素であるため，Aスクランブリングが可能となり，その結果，関係節主語位置の照応詞が認可されると分析する。また，英語関係節についてもこの顕在的要素の生起モデルを用いて分析し，照応詞認可について日本語関係節と差が見られるのは，日本語にはV移動があるが，英語にはV移動がないためであると結論づける。この顕在的要素の生起モデルに加え，関係節内に生起したこの顕在的要素の削除（deletion）のモデルを仮定することにより，日本語関係節の特徴の一つである島の効果の欠如も説明できることを示す。

Keywords: head-raising（関係節主要部移動），EPP（EPP素性），
A-scrambling（Aスクランブリング），V-Movement（動詞移動），
phase（フェイズ）

1. Introduction

In English relative clauses, anaphors cannot occur within the subject NP. This is due to Condition A of binding theory: the anaphor cannot be bound by its antecedent within TP. Interestingly, however, Japanese relative clauses allow the occurrence of anaphors in the subject NP, though the anaphor *otagai* 'each other' appears not to be bound by the antecedent.[1] This difference is shown in (1) and (2).

(1) ? Otagai-no tan'nin-no sensei-ga e_i hometa hutari-no seito$_i$
each other-GEN homeroom teachers-NOM praised two students
'*Lit.* The two students who(m) each other's homeroom teachers praised'

(2) * the two students$_i$ who(m) each other's teachers like e_i

In this paper, I will explain this uncharacteristic anaphor licensing fact in Japanese relative clauses by proposing a movement and deletion theory, which is based on the overt A-movement of the head NP and the deletion of NPs in the relative clause. In addition, I will explain the difference in anaphor licensing between Japanese and English relative clauses in terms of V-movement. I will furthermore argue that the movement and deletion theory can explain the difference in island effects between English and Japanese relative clauses.

This paper is organized as follows: Section 2 deals with the impossibility of A-scrambling of null operators. Section 3 considers the categorization and the *pro*-analysis of Japanese relative clauses. Section 4 examines an alternative analysis of Japanese relative clauses, which is based on overt A-movement of NPs. Section 5 considers English relative clauses on the basis of this alternative analysis. Section 6

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[1] The degraded grammatical status is not due to violation of Condition A of binding theory. (1) is much more acceptable than (ib), in which Condition A is violated.

(i) a. Hutari-no seito-ga otagai-no tan'nin-no sensei-o hometa (koto).
two students-NOM each other's homeroom teachers-ACC praised (fact)
'The two students praised each other's teachers.'

b. ? * Otagai-no tan'nin-no sensei-ga hutari-no seito-o hometa (koto).
each other's homeroom teachers-NOM two students-ACC praised (fact)
'Each other's homeroom teachers praised the two students.'

(cf. Saito 1992: 74)

proposes a copy and deletion theory of NP-movement for the analysis of NP movement in relative clauses. Section 7 investigates the lack of island effects shown in relativization in Japanese. A summary of the analysis and its implications conclude the paper.

2. Null Operators

Ishii (1991) argues that Japanese relative clauses contain null operator movement. Under this view, a null operator occurs in the gap position in relative clauses, and it undergoes movement to Spec-CP. Based on this analysis, let us consider (1). A null operator occurs in the VP-complement position in the relative clause and moves to Spec-CP, as represented in (3):

(3) [NP [CP OP_i [TP otagai-no tan'nin-no sensei-ga t_i hometa]] hutari-no seito$_i$]

In (3), there are no derivational points where the null operator can bind the anaphor *otagai*. In the gap position, it occurs in a structurally lower position than the anaphor, and hence cannot bind the anaphor. In the derived position, the null operator cannot bind *otagai* either, because it is located in an A'-position. However, we can consider another derivation. Suppose that the null operator is A-scrambled to Spec-TP before moving to Spec-CP. Then, it can A-bind the anaphor *otagai*, and hence no violation of Condition A arises. However, this derivation is not available. Takahashi (2002) argues that null operators cannot undergo A-scrambling by examining cleft constructions. Consider (4):

(4) * Otagai$_i$-no gakusei-ga aitagatteiru no-wa [Taroo to Hanako]$_i$-ni da.
each other-GEN student-NOM want-to-see that-TOP Taroo and Hanako-DAT is
'*It is Taroo and Hanako that each other's students want to see.'

(5) [CP OP_i [C' [TP otagai$_i$-no gakusei-ga t_i aitagatteiru] no]]-wa Taroo to Hanako$_i$-ni da.

(Takahashi 2002: 49)

In Japanese cleft constructions, anaphors cannot occur in the subject NP, as shown in (4). Takahashi (2002) concludes that this is because null operators cannot A-scramble.

Since the null operator in the gap position moves to Spec-CP directly, the anaphor *otagai* is not bound by its antecedent. Hence, anaphors cannot occur in the subject NP in Japanese cleft sentences. To summarize, Takahashi (2002) proposes the following:

(6) Null operators, unlike their lexical counterparts, are unable to undergo A-scrambling. (*op. cit.*, p. 51)

Assuming Takahashi's proposal, null operators move to Spec-CP without landing in Spec-TP. Hence, there are no derivational points where Condition A is satisfied in (1). The grammaticality of (1) therefore needs to be explained.

3. Categorization of Japanese Relative Clauses and *pro*

3.1. Categorization

Let us now consider the uncharacteristic anaphor licensing effect of (1) under Takahashi's (2002) mechanism. Before exploring further, let us examine the categorization of Japanese relative clauses, which will be crucial in my analysis. Murasugi (1991) suggests that Japanese relative clauses are IP (TP in the Minimalist Program) on the basis of an ECP-based explanation. Consider (7) and (8).

(7) a. the reason [(why$_i$) [Mary thinks [that John left e_i]]]
b.* Mary-ga [John-ga e_i kaetta to] omotte iru] riyuu$_i$
NOM NOM left C thinking reason
'the reason Mary thinks that John left'

(8) [John-ga e_i kaetta] riyuu$_i$]
NOM left reason
'the reason John left' (Murasugi 1991: 140)

(7a) shows that relativization from a pure adjunction position is unbounded in English. On the other hand, as the contrast between (7b) and (8) shows, relativization from a pure adjunct is clause-bound in Japanese. Murasugi (1991) claims that the difference between (7a) and (7b) can be explained in terms of the empty category principle

(ECP), if we assume that Japanese relative clauses are TPs, while English relative clauses are CPs, and that only X-zero categories can be proper governors of antecedents. Since the initial trace receives the same index as the intermediate trace through Spec-head agreement, the lower C can antecedent-govern the initial trace in (7a). The intermediate trace is antecedent-governed by the higher C, which receives the same index as *why* or the empty operator through Spec-head agreement, as represented in (9):

(9) [NP the reason$_i$ [CP why (*OP*) [C' C$_i$ [TP T [VP V [CP *t*'$_i$ [C' C$_i$ [IP ... *t*$_i$ ...]]]]]]]]

Hence, movement *why* from the most deeply embedded position is possible in (7a). On the other hand, in (7b), given that Japanese relative clauses are TPs, the relative operator must adjoin to TP, because the clause is not projected to CP. Since the relative operator does not stay in an X-zero position, it cannot govern the intermediate trace, as shown in (10):

(10) [NP [TP *OP*$_i$ [TP [VP [CP *t*'$_i$ [C' [TP ... *t*$_i$ ...] C]] V] T]] riyuu$_i$]

In addition to deriving the contrast between (7a) and (7b) straightforwardly from the ECP, the fact that Japanese relative clauses do not have relative pronouns supports Murasugi's claim. Following Murasugi's arguments, I assume that Japanese relative clauses are TPs throughout this paper.

3.2. *pro*

Murasugi (1991, 2000) suggests that *pro* occurs in the gap position in Japanese relative clauses by examining the island insensitivity of relativization in Japanese, first pointed out by Kuno (1973). On the other hand, English relativization is island-sensitive.

(11) [NP [TP [NP [TP *e*$_i$ *e*$_j$ kiteiru] yoohuku$_j$-ga] yogoreteiru] sinsi$_i$]
wearing suit-NOM dirty gentleman
'*Lit.* a gentleman who the suit that (he) is wearing is dirty' (Kuno 1973: 239)

(12) * the girl who I heard the rumor that John loves

If we were to suppose that the head NP *sinsi* is extracted from the relative clause in (11), the extraction crosses the island and causes a subjacency violation. However, (11) does not exhibit any such violation. In addition, an overt resumptive pronoun can occur in the position of a gap. In (13), the resumptive pronoun *kare/soitu* 'he/that guy' occurs in the position of the gap.[2]

(13) ? [NP [TP [NP [TP kare$_i$/soitu$_i$-ga　e_j　kiteiru]　yoohuku$_j$-ga]　yogoreteiru]
　　he/that guy-NOM　wearing　suit-NOM　dirty
　　sinsi$_i$]
　　gentleman
　　'*Lit.* a gentleman who the suit that (he) is wearing is dirty'　(*op. cit.*, p. 239)

From this island insensitivity and the existence of resumptive pronouns, Kuno (1973) and Murasugi (1991, 2000) suggest that extraction of the head NP does not occur in Japanese relative clauses. Murasugi (1991, 2000) proposes that *pro* occurs in the gap position, and hence there is no extraction of the head NP or a null operator in relative clauses. (14) represents this:

(14)　[NP [TP [NP [TP *pro*$_i$ *pro*$_j$ kiteiru] yoohuku$_j$-ga] yogoreteiru] sinsi$_i$]

Taking this non-movement analysis into consideration, it seems plausible to suppose that *pro*, like null operators, do not undergo A-scrambling. Miyagawa (2001) reaches

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[2] Kuno (1973) originally provides examples with the pronoun *kare* 'he.' Hoji (1991) proposes that *kare* in Japanese cannot be construed as a bound variable. In (ia, b), *kare* 'he' cannot have *daremo* 'every' as its antecedent:

(i) a. Daremo$_i$-ga [NP [TP zibun$_i$-ga/*kare$_i$-ga/*ec*$_i$ tukutta] omotya]-o kowasita.
　　everyone-NOM　self-NOM he-NOM　made　toy-ACC　broke
　　'Everyone$_i$ broke the toy that he$_i$ had made.'
　　b. Daremo$_i$ [NP [TP zibun$_i$-ga/*kare$_i$-ga/*ec*$_i$ tukutta] omotya]-o mottekonakatta.
　　no one　self-NOM he-NOM　made　toy-ACC　did not bring along
　　'No one$_i$ brought along the toy that he$_i$ had made.'
　　(Hoji 1991: 287)

Yoshimura (1992) argues that *soitu* 'that guy' works as a pure bound variable. I then provide data with the pronoun *soitu*.

the same conclusion under his mechanism of EPP-driven scrambling. To be concrete, he argues that phonologically null elements cannot occupy Spec-TP. Adding this perspective on *pro* to Takahashi's (2002) proposal, let us assume as follows:

(15) Null elements (null operators, *pro*, etc.), unlike their lexical counterparts, are unable to undergo A-scrambling.

Based on (15), let us consider (1) again by using *pro*. Since *pro* is a null element, it stays in the VP-complement position of the relative clause throughout the derivation. Then, the anaphor *otagai* is not bound by its antecedent at any stage of the derivation, and this yields a violation of Condition A.

(1) ? Otagai-no tan'nin-no sensei-ga e_i hometa hutari-no seito$_i$
(16) [NP [TP otagai-no tan'nin-no sensei-ga *pro*$_i$ hometa] hutari-no seito$_i$]

The *pro* analysis cannot explain the uncharacteristic anaphor licensing effect in (1), either. The grammaticality of (1) still needs to be explained.

4. Japanese Relative Clauses: V-movement and A-movement of Overt NPs

In the previous section, we saw that null elements (null operators, *pro*) cannot occur in the relative clause, when an anaphor occurs within the subject NP in the relative clause. This shows that we cannot use null elements in analyzing relative clauses, at least not when an anaphor occurs in the subject NP. I thus suggest an alternative analysis and argue that the analysis can be applied to other cases of relative clauses, for example anaphors occurring in the object NP, etc.

I propose that an overt NP, which corresponds to a relativized NP, occurs in the gap position of the relativized NP and this NP binds the anaphor in the subject NP. For ease of explanation, I refer to a relativized NP as "a head NP" and an NP occurring in a relative clause as "an inside NP." In (1), an inside NP *hutari-no seito* 'two students' occurs in the VP-complement position, as represented in (17).

(1) ? Otagai-no tan'nin-no sensei-ga e_i hometa hutari-no seito$_i$

(17)　[NP [TP [$_{v}$P otagai-no tan'nin-no sensei-ga [VP <u>hutari-no seito</u> t_V] t'_V] hometa$_V$] <u>hutari-no seito</u>]
(inside NP)
(head NP)

In its base-generated position, the inside NP *hutari-no seito* cannot bind the anaphor *otagai*, since it occurs in a structurally lower position than the anaphor.

Now, let us adopt Miyagawa's (2001) hypothesis regarding the EPP-feature of T. Miyagawa (2001) suggests, on the basis of the scope data of (18a, b), that A-scrambling is triggered by the EPP-feature of T.

(18) a. Zen'in-ga sono tesuto-o ukenakatta (yo / to omou).
all-NOM that test-ACC take-NEG-PAST
'All did not take that test.'
*not > all, all > not
b. Sono tesuto-o$_i$ zen'in-ga t_i ukenakatta (yo / to omou).
that test-ACC all-NOM t_i take-NEG-PAST
'That test, all didn't take.'
not > all, (all > not) (Miyagawa 2001: 299)

In (18a), *zen'in* 'all' can take scope over the negation but not vice versa. However, when an object is scrambled, the negation can take scope over *zen'in* as in (18b). Miyagawa (2001) argues that this difference is rooted in the EPP-feature of T. He suggests that scrambling is triggered by the EPP-feature of T. The movement of the verbal complex (V-*v*) to T enables both a subject and an object to be equidistant from T, and hence either a subject or an object can check the EPP-feature of T. In (18a), in which scrambling does not take place, the subject *zen'in-ga* checks the EPP-feature of T. On the other hand, in (18b) the scrambled object satisfies the EPP-feature of T. These are shown in (19a, b), respectively:

(19) a. [TP Zen'in-ga$_i$ [$_{v}$P t_i [VP tesuto-o t_V] t'_V] ukenakatta]
b. [TP Tesuto-o$_j$ [$_{v}$P zen'in-ga [VP t_j t_V] t'_V] ukenakatta]

Miyagawa (2001) argues that the quantifier *zen'in* is not c-commanded by the negation

in (19a), and hence *zen'in* takes scope over the negation. On the other hand, in (19b), *zen'in* is c-commanded by the negation, and hence the negation can take scope over the quantifier *zen'in*. Given that scrambling is triggered by EPP, we can predict the correct correlations.

I adopt this mechanism and suggest that an inside NP, which occurs in the gap position in a relative clause, is attracted to Spec-TP by the EPP-feature of T in Japanese. Let us now consider (1) again. The inside NP *hutari-no seito* occurs in the gap position, as represented in (17). This inside NP is attracted to Spec-TP by the EPP-feature of T. This is schematized as (20):

(1) ? Otagai-no tan'nin-no sensei-ga e_i hometa hutari-no seito$_i$

(20) [NP [TP hutari-no seito [$_{v}$P otagai-no tan'nin-no sensei-ga [VP hutari-no seito t_V]t'_V] hometa$_V$] hutari-no seito]

In the derived position, namely Spec-TP, the inside NP *hutari-no seito* can c-command the anaphor *otagai*. Based on the derivational model of Condition A, which is proposed by Belletti and Rizzi (1988), Lebeaux (1988, 1991) and Epstein et al. (1998), Condition A can apply at any point of the cyclic derivation. Condition A is therefore satisfied at the point where the inside NP is scrambled to Spec-TP. Thus, the presence of inside NPs and the fact that they can undergo scrambling driven by the EPP-feature of T can explain the uncharacteristic anaphor licensing effect in Japanese relative clauses.

Next, let us consider the case where the anaphor occurs in the object NP in Japanese relative clauses.

(21) Hutari-no tan'nin-no sensei-ga e_i hometa otagai-no seito$_i$
two homeroom teachers-NOM praised each other's students
'Each other's students who(m) the two homeroom teachers praised'

The inside NP *otagai-no seito* occurs in the gap position. In this base-generated position, the anaphor *otagai* is bound by its antecedent *hutari-no tan'nin-no sensei*. Condition A is therefore satisfied at this point. Then, the inside NP is attracted to Spec-TP by the EPP-feature of T. This is represented in (22):

(22)　[NP [TP otagai-no seito [$_{v}$P hutari-no tan'nin-no sensei-ga [VP otagai-no seito t_V]

t'_V] hometa$_V$] otagai-no seito]

The EPP-based theory yields correct predictions in the case where an anaphor occurs in the object NP.

5. English Relative Clauses: Lack of V-movement

5.1. V-movement

Next, let us consider English relative clauses. As we have seen in (2), an anaphor occurring within the subject NP in the relative clause cannot be licensed by the head NP in English relative clauses.

(2) * the two students$_i$ who(m) each other's teachers like e_i

Let us examine (2) in light of the analysis of Japanese relative clauses adopted here. The inside NP *the two students* occurs in the gap position as in (23):

(23)　[CP [TP T [$_{v}$P each other's teachers [VP like the two students]]]]
(inside NP)

In Japanese relative clauses, the inside NP undergoes scrambling to Spec-TP to check the EPP-feature of T. However, I suggest that the same operation does not take place in English relative clauses. I propose that a subject always checks the EPP-feature of T in English relative clauses because of the lack of V-movement. Fukui (1986), Kuroda (1988) and Kitagawa (1986) argue that a subject occurring in Spec-*v*P must be raised to Spec-TP in English, whereas it need not be raised in Japanese. Fukui (1986) suggests that this difference is related to whether there is V-movement to T or not. He proposes that verbs in English do not undergo V-movement to T, whereas verbs in Japanese do.[3]

[3] Otani and Whitman (1991) advance the same view by analyzing null object constructions in Japanese.

Miyagawa (2001) argues that V-movement to T makes a subject and an object equidistant from T. Based on this idea, due to lack of V-movement, the subject NP is closer to Spec-TP than the object NP in English. As a consequence, the EPP-feature of T must be satisfied by the subject NP in English. Thus, there are no derivational points where the anaphor is bound by the antecedent NP. As a result, Condition A is not satisfied. This is schematized as in (24).

(24) [CP [TP each other's teachers$_i$ T [$_{v}$P t_i [VP like the two students]]]]

5.2. Movement of Inside NPs

I have argued that an inside NP undergoes scrambling to Spec-TP to check the EPP-feature of T because of V-movement in Japanese relative clauses, while English lacks such movement because of lack of V-movement. However, following Fox (2002), I assume that the inside NP moves to Spec-CP to check off the *wh*-feature of C. Fox argues that a CP-internal NP, which corresponds to an inside NP in our terms, moves to Spec-CP and is deleted under identity with a CP-external NP, which corresponds to a head NP in our term.[4]

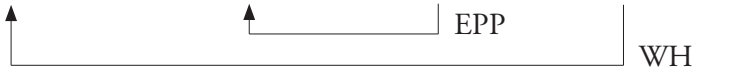
(25) Every boy [CP ~~boy~~ Mary likes ~~boy~~]. (Fox 2002: 75)

Using Fox's (2002) intuition, let us assume that an inside NP undergoes movement to Spec-CP to check off the *wh*-feature of C. Based on this, let us examine (2) again. The inside NP *the two students* occurs in the gap position, namely the VP-complement position. Due to lack of V-movement, the subject *each other's teachers* is attracted to Spec-TP by the EPP-feature of T. Next, the inside NP *the two students* moves to Spec-CP to check off the *wh*-feature of C. These movements are represented as follows:

[4] Fox (2002) assumes that the NP in Spec-CP is not interpreted but that movement turns the relative clause into a predicate that combines with the CP-external NP by predicate modification. He suggests that Trace Conversion yields the following structure:

(i) every [boy λx. Mary likes the boy x]
meaning: λP. ∀x ((boy(x) & Mary likes the boy x) → P(x)) (Fox 2002: 75)

(26) [CP the two students C [TP each other's teachers$_i$ T [$_{v}$P t_i [VP like the two students]]]]



Thus I suggest that English relative clauses include the movement of an inside NP to Spec-CP to check off the *wh*-feature of C.

6. Deletion of Inside NPs

6.1. Equi-NP Deletion

I have suggested that an inside NP occurs in a relative clause and undergoes movement to Spec-TP in Japanese and Spec-CP in English. However, the multiple occurrence of the same NP may cause a problem in the PF component. For this PF-related reason, I will propose that the inside NP is deleted under identity with a head NP.

As discussed in the last section, Fox (2002) suggests the deletion of inside NPs under identity with a head NP. Basically I adopt his analysis. However, Fox (2002) does not comment on the deletion of the NP in the base position. I therefore propose the following:

(27) When an inside NP undergoes movement in a relative clause, it moves and its copy is deleted if and only if a moved inside NP c-commands its copy.

I thus argue that an inside NP undergoes movement its copy deleting. This idea is similar to Harada's (1973) idea of Equi-NP deletion in the analysis of comparative deletion and sentence pronominalization.

(28) Equi-NP Deletion

When a deletion transformation operates on a pair of identical elements, one asymmetrically commanding the other, it is the commanded, rather than the commanding, element that is deleted by that transformation.

(Harada 1973)

I adopt Harada's intuition and apply it to deletion of copies of inside NPs in relative clauses.

6.2. The Mechanism of Deletion and the PIC

In 6.1, I have proposed the deletion of inside NPs in relative clauses in the case where movement of inside NPs is included. Let us now consider the deletion of an inside NP which is deleted under identity with a head NP. To determine the scope of identification between an inside NP and a head NP, let us consider an English relative clause.

(29) He is a man who(m) Mary likes.

The inside NP *a man* occurs in the VP-complement position. The subject *Mary* moves to Spec-TP to check the EPP-feature of T, because of lack of V-movement. The inside NP *a man* then moves to Spec-CP to check the *wh*-feature of C. These are represented in (30):

(30) [NP a man [CP a man$_j$ [C' who(m) C [TP Mary$_i$ T [$_{v}$P t_i likes$_V$ [VP ~~a man~~ t_V]]]]]]
(head NP) EPP WH

The inside NP in the base-generated position is deleted, because the moved inside NP *a man* in Spec-CP c-commands this inside NP. This moved inside NP is deleted under identity with the head NP. I propose that Chomsky's (2000) Phase Impenetrability Condition (PIC) is closely related to deletion of inside NPs. The PIC is defined as follows:

(31) The Phase Impenetrability Condition (PIC)
In phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations.
(Chomsky 2000: 108)

The PIC thus dictates that the head and the edge of a phase are accessible to the

succeeding phase. Following Takahashi (2001), I make the assumption that CPs form a phase but *v*Ps do not. Consequently, an inside NP which will be deleted under identity with a head NP must occur in the same phase as the head NP or it must occur in Spec-CP.

Assuming (31), let us examine (30) again. The head NP and the moved inside NP do not occur in the same phase, but this inside NP occurs at the edge of a CP-phase. The element at the edge of a CP-phase is accessible to the next phase, and hence the inside NP can be deleted under identity with the head NP.

To summarize, I have proposed the following deletion theory:

(32) Deletion Theory

An inside NP must be deleted under identity with a head NP. The mechanism of deletion obeys the phase impenetrability condition (PIC). When an inside NP undergoes movement within a relative clause, it moves and its copy is deleted if and only if the moved inside NP c-commands its copy.

6.3. Deletion in Japanese Relative Clauses

Let us now examine (1) again under the deletion mechanism proposed in (32).

(1) ? Otagai-no tan'nin-no sensei-ga e_i hometa hutari-no seito$_i$

As we considered in Section 4, the inside NP occurs in the VP-complement position and it is attracted to Spec-TP to check the EPP-feature of T. The attracted inside NP located in Spec-TP c-commands the copy in the base position, and hence the copy is deleted.

(33) [NP [TP <u>hutari-no seito$_i$</u> [$_v$P otagai-no tan'nin-no sensei-ga [VP ~~hutari-no seito$_i$~~
(inside NP) (inside NP)
t_V] t'_V] hometa$_V$] <u>hutari-no seito</u>]
(head NP)

Next, let us consider the deletion of the inside NP in Spec-TP. Based on the deletion theory of (32), this inside NP must be deleted under identity with the head NP. There are no CPs between this inside NP and the head NP, and hence this inside NP can be deleted in accordance with the Phase Impenetrability Condition.

The deletion mechanism proposed in this paper is thus able to explain why there are no multiple occurrences of the same NP in the PF component.

6.4. Summary of Movement and Deletion Theory

In Section 6, I have argued that there is a categorial difference between English and Japanese relative clauses. English relative clauses form CPs, while Japanese ones form TPs. In addition, following Takahashi (2002), I have assumed that null elements cannot undergo A-scrambling. Instead of null elements, I have proposed that an inside NP, which corresponds to a head NP, must occur in the gap position of the head NP. An inside NP undergoes movement to Spec-TP in Japanese, while it moves to Spec-CP in English. In Japanese, V-movement to T guarantees that either a subject or an object can check the EPP-feature of T, and hence even when an inside NP occurs in the object position, it can move to Spec-TP. An anaphor in the subject NP in the relative clause can therefore be bound by this inside NP. On the other hand, there is no V-movement to T in English, and hence a subject must check the EPP-feature of T. When an inside NP occurs in the object position, it is unable to move to Spec-TP before moving to Spec-CP. Hence, the anaphor in the subject NP is not bound by the inside NP in this case. I have also suggested that the inside NPs must be deleted under identity with the head NP and that the deletion obeys the PIC. I call the analysis presented in this paper the "movement and deletion" theory. To summarize, the movement and deletion theory is defined as follows:

(34) Movement and Deletion Theory
- In relative clauses, an inside NP, which corresponds to a head NP, occurs in the gap position.
- The EPP-feature of T must be checked by an overt element (Miyagawa 2001, Takahashi 2002). In Japanese relative clauses, either a subject NP or an object NP can check the EPP-feature of T because of V-movement. In English relative clauses, only a subject NP can check the EPP-feature of T, because

English lacks V-movement.

- An inside NP must be deleted under identity with a head NP. The mechanism of deletion obeys the phase impenetrability condition. When an inside NP undergoes movement within a relative clause, it moves and its copy is deleted if and only if the moved inside NP c-commands its copy.

7. The Lack of Island Effects in Japanese Relatives

As we briefly discussed in 3.2, Japanese relative clauses do not show island effects, as argued in Kuno (1973), Murasugi (1991, 2000), while English relative clauses do show them. Movement and Deletion Theory can accommodate this difference. Let us examine (35), which contains an island.

(35) ? Otagai-no tan'nin-no sensei-ga e_i e_j hometa heya$_j$-de
each other's homeroom teachers-NOM praised in the room
nakidasita hutari-no seito$_i$
started crying two students
'*Lit.* the two students$_i$ who started crying in the room where each other$_i$'s teachers praised'

First, inside NPs occur in the gap positions. The inside NP *hutari-no seito* undergoes movement to Spec-TP with deletion of its copy in the base position. After raising the inside NP, the structure is as follows:

(36) [$_{TP}$ <u>hutari-no seito$_i$</u> [$_{vP}$ otagai-no tan'nin-no sensei-ga <u>heya(-de)</u> ~~<u>hutari-no seito$_i$</u>~~
(inside NP) (inside NP) (inside NP)
t_V] hometa$_V$]

The anaphor *otagai* is bound by *hutari-no seito*, and hence Condition A is satisfied at this derivational point. Let us consider the succeeding derivation. After this TP is formed, the head NP *heya* merges with this TP. The inside NP *heya* must be deleted under identity with the head NP. Since there are no CP boundaries between the head NP and the inside NP, deletion of the inside NP is successfully accomplished.

(37) [PP [TP hutari-no seito$_i$ [$_v$P otagai-no tan'nin-no sensei-ga ~~heya(-de)~~
(inside NP(PP))
~~hutari-no seito$_i$~~ t_V] hometa$_V$] heya-de]
(head NP(PP))

Next, the higher TP is formed. Let us assume here that *pro*, which refers to the NP *hutari-no seito*, occurs in Spec-*v*P. Since null elements cannot undergo movement to Spec-TP by the assumption (15), let us suppose that the PP [*Otagai-no tan'nin-no sensei-ga hometa heya-de*] moves to Spec-TP and checks the EPP-feature of T instead.

(38) [TP [PP [NP [TP hutari-no seito [$_v$P otagai-no tan'nin-no sensei-ga ~~heya(-de)~~
~~hutari-no seito$_i$~~ t_V] hometa$_V$] heya] de] [$_v$P *pro*$_i$ t_V] nakidasita]

After this formation of TP, the head NP *hutari-no seito* merges with this TP. The inside NP *hutari-no seito* within PP must be deleted under identity with the head NP. Since there are no CP boundaries between the head NP and the inside NP, the inside NP undergoes deletion. Consequently, only one occurrence of *hutari-no seito* is spelled out at PF.

(39) [NP [TP [PP [NP [TP ~~hutari-no seito$_i$~~ [$_v$P otagai-no tan'nin-no sensei-ga ~~heya(-de)~~
(inside NP)
~~hutari-no seito$_i$~~ t_V] hometa$_V$] heya] de] [$_v$P *pro*$_i$ t_V] nakidasita$_V$] hutari-no seito$_i$
(head NP)

There is no movement which violates the subjacency condition, and hence no island effects arise.

Next let us consider English relative clauses, which show island sensitivity, as represented in (40):

(40) * the girl who I heard the rumor that John loves

An inside NP *the girl* occurs in the gap position, namely in the VP-complement position in the most deeply embedded clause. This inside NP is attracted to Spec-CP

to check the *wh*-feature of C with deleting its copy.

(41)　[CP the girl$_j$　that　[TP John$_i$ [$_{v}$P t_i loves　~~the girl$_j$~~　]]]

This inside NP in Spec-CP is attracted to Spec-CP in the next phase to check the *wh*-feature of C. However, this movement crosses the NP and TP boundaries. Therefore, a subjacency violation arises.

(42)　[CP the girl$_j$　[TP I [$_{v}$P heard [NP the rumor [CP the girl$_j$　that [TP John$_i$ [$_{v}$P t_i loves ~~the girl$_j$~~]]]]]]]

Thus, Movement and Deletion Theory can explain the difference in island sensitivity between Japanese and English relative clauses.

8. Conclusion

In this paper, I have discussed the difference in anaphor licensing between Japanese and English relative clauses. In Japanese an anaphor can occur within the subject NP in a relative clause and be bound by the head NP, but this is not the case in English. I have assumed that an inside NP, which corresponds to the head NP, occurs in the relative clause and undergoes movement within the relative clause. In Japanese, either a subject or an object is able to check the EPP-feature of T because of the presence of V-movement. On the other hand, in English, only a subject can check it because of the lack of V-movement. I have argued that the difference in anaphor licensing between Japanese and English relative clauses is due to the presence or absence of V-movement. I have also shown that the analysis presented in this paper can explain the difference in island effects between Japanese and English relative clauses. The study presented in this paper supports Takahashi's (2002) analysis of null operators and Miyagawa's (2001) analysis of the EPP. The treatment of relative clauses in this paper also bears out the head-raising/promotion analysis of relative clauses presented by Brame (1968), Schachter (1973), Vergnaud (1974), Kayne (1994), Åfarli (1994), Bhatt (2002), Hoshi (2004a, b), etc.

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